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The vast deficit in sanitation

**“‘Latrines for us!’ they
exclaimed in astonishment.
‘We go and perform our
functions out in the open.
Latrines are for you big
people’”**

**Mahatma Gandhi recounting untouchables’ grievances,
Rajkot Sanitation Committee, 1896**

**“Filthy water cannot
be washed”**

African Proverb

Access to basic sanitation is a crucial human development goal in its own right, but sanitation is also a means to far wider human development ends

“The history of men,” wrote Victor Hugo in *Les Misérables*, “is reflected in the history of sewers.... The sewer is the conscience of a city.”¹ He was using the sewers of mid-19th century Paris as a metaphor for the condition of the city. However, there is a broader sense in which the state of sanitation says something about the state of a nation—and more profoundly about the state of human development.

As a global community we face a vast deficit in sanitation—a deficit overwhelmingly concentrated in developing countries. Today, almost one in two people in the developing world lacks access to improved sanitation. Many more lack access to good quality sanitation. While the provision of sanitation for all has been a key development goal since the 1970s, progress has been glacial. Coverage rates are improving. But without a rapid increase in the scale and effectiveness of sanitation programmes, the Millennium Development Goal target for 2015 will be missed by a wide margin.

That outcome would be a grave setback for human development. Each percentage point gap between the Millennium Development Goal target and actual outcomes means tens of millions of people affected by illness and tens of thousands of avoidable child deaths. Access to basic sanitation is a crucial human development goal in its own right: for millions of people not having a safe, private and convenient toilet facility is a daily source of indignity as well as a threat to well-being. But sanitation is also a means to far wider human development ends. Without basic sanitation the benefits of access to clean water are diminished—and the health, gender and other inequalities associated with the sanitation deficit systematically undermine progress in education, poverty reduction and wealth creation.

Sanitation improvements can broaden the real choices and substantive freedoms that

people enjoy, acting as a catalyst for a wide range of human development benefits. They can protect people—especially children—from ill health. They can lift people out of poverty, reducing the risks and vulnerabilities that perpetuate cycles of deprivation. They can raise productivity, boost economic growth and create employment. And they can build people’s pride in their homes and communities.

This chapter highlights the scale of the global deficit in sanitation. After briefly outlining the contours of the sanitation deficit, it asks why progress in reducing that deficit has been so slow, and it identifies some of the structural factors that explain why advances in sanitation have lagged behind those in water. Failure to overcome inequalities and create choices for the poorest sections of society is a central part of the problem. The chapter explores some of the policies and strategies that have created an environment for accelerated progress. Interventions organized by slum dwellers and the rural poor show what is possible through community-led interventions under the right institutional conditions. But action from below is an insufficient condition for accelerated progress. Partnerships between communities and local governments under the umbrella of effective national strategies hold the key to scaling up.

Many obstacles need to be removed if the world is to accelerate progress in sanitation.

Simple distinctions between “improved” and “unimproved” technologies tend to understate the scale of the deficit in the provision of sanitation

Perhaps the greatest obstacle of all is stigma. Much has been written about the sense of shame experienced by people lacking access to sanitation facilities. At higher political levels there is an overwhelming tendency to treat sanitation as a problem that should be hidden from view. The reality that open defecation forces on more than half the developing world’s population, and the associated costs for human and national economic development, do not prompt political leaders to appoint high-level ministers or commissions to address what is a national emergency. Instead, sanitation is relegated to the back-rooms of politics.

The parallels with HIV/AIDS are at once instructive and disconcerting. HIV/AIDS was

viewed as a problem to be swept under the carpet. The world is still paying the price for the unwillingness to provide decisive leadership when it would have been possible to achieve an early reversal of the pandemic. In the case of sanitation millions of people are paying every day for the failure to confront the problem of inadequate provision, many of them—especially children in poor households—with their lives. With HIV/AIDS it was not until political leaders, civil society groups, the media and ordinary people started speaking openly about the problem that the issue climbed up the political agenda and began to generate an effective policy response. What is needed now is for advocates of sanitation to force a similar change.

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The vast deficit in sanitation

The 2.6 billion people without sanitation

For sanitation, as for water, international data provide an imperfect guide to the state of provision. Technology is an important aspect of provision, but simple distinctions between “improved” and “unimproved” technologies tend to understate the scale of the deficit—and to misrepresent its nature.

Perhaps the most daunting aspect of the sanitation deficit is its scale. As chapter 1 showed, some 2.6 billion people lack access to improved sanitation—two and a half times the deficit for access to clean water. Just reaching the Millennium Development Goal target of halving the global deficit against the 1990 coverage level would require bringing improved sanitation to more than 120 million people every year between now and 2015. And even if that were accomplished, 1.9 billion people would still be without access.

When people in rich countries think about basic sanitation, their perceptions are shaped by the historical experience outlined in chapter 1. Almost everyone living in the developed world has access to a private, flush toilet served by a continuous supply of piped water—with taps

and toilets in close proximity. From a health perspective, this is optimal. Human waste is channelled by pipes into sewerage systems and treatment facilities, ensuring that drinking water is separated from the pathogens carried in faecal material. Meanwhile, taps located in sanitation facilities enable people to maintain personal hygiene.

But at the other end of the sanitation spectrum are the millions of people forced to defecate in bags, buckets, fields or roadside ditches. If the developed country model were the benchmark, the number of people lacking sanitation would be far higher than that recorded by World Health Organization (WHO) and United Nations Children’s Fund (UNICEF) data. The global deficit would soar from 2.6 billion people to about 4 billion.²

The gap in sanitation between developed and developing countries is a striking example of inequality in human development. Of course, inadequate financial resources and technical capacity, allied in some cases with water shortages, make it unrealistic to assume that a developed country model could be extended rapidly across

the developing world. But it is important to look beyond the minimal levels of provision needed to meet the Millennium Development Goal target. In the 1840s social reformers in Great Britain argued for public action to ensure that every house had access to clean water and an on-site toilet. More than 150 years later, that goal remains beyond the reach of large numbers of people in the developing world.

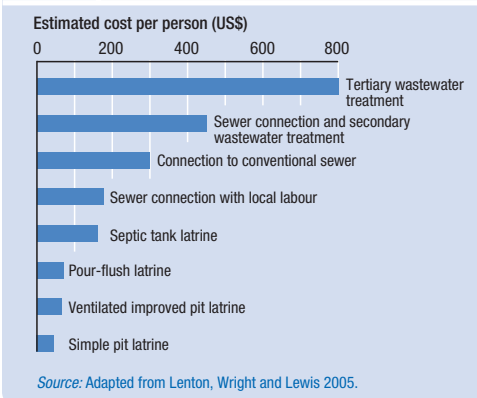
Who is where on the sanitation ladder?

The broad category of “improved” provision can be thought of as a sanitation “ladder” extending from very basic pit latrines to improved pit latrines, pour-flush facilities using water and septic tanks, through to conventional sewers (figure 3.1). Moving up the ladder has financial implications. It costs some 20 times more to connect a household to a modern sewerage system than to purchase a basic pit latrine.

The sanitation ladder draws attention to an important, but widely neglected public policy issue. Most Millennium Development Goal costing exercises, including those in chapter 1, set out by identifying the financing requirements for getting on to the ladder at the lowest appropriate rung. The \$10 billion price tag for reaching the Millennium Development Goal sanitation target is based on access to the first rung of the sanitation ladder—simple pit latrines. A similar exercise for the top rungs of the sanitation ladder, including household connections to sewerage facilities and the provision of municipal wastewater treatment, would raise the cost to \$34 billion.³ Set against these cost differences, climbing the sanitation ladder offers major health benefits. While even the most basic improved sanitation offers benefits, returns to human development rise progressively at each level. In urban areas of Peru, to take one example, having a pit latrine in the home lowers the incidence of diarrhoea by 50%, while having a flush toilet lowers the risk by 70%.

Moving from open defecation at one extreme to the safe collection, storage and disposal of human excreta and the treatment or recycling of sewage effluents poses different

Figure 3.1 Climbing the sanitation ladder has financial as well as health implications



challenges in different contexts. In rural areas sewerage networks are often not available. Improved sanitation usually means passing through a hierarchy of pit latrines, with pour-flush latrines and septic tank latrines the plausible options. In urban areas the picture is more mixed. For high-density urban areas sewerage systems have obvious advantages. Connections to feeder sewers and trunk sewers are the safest way to separate people and drinking water from human waste: an age-old human development challenge. But where the reach of the sewerage network is limited and the unserved population is large, the capital costs of developing a sewerage system capable of connecting all households can be prohibitive. Under these conditions on-site sanitation or public facilities may be the most viable short- to medium-run option.

Beyond the latrine

The diversity of current provision patterns cautions against universal policy prescriptions. Much of Sub-Saharan Africa has low coverage by sewerage networks, with less than 10% of the urban population connected. The same holds for countries at higher average incomes. Cities such as Jakarta and Manila have lower levels of sewerage coverage (8%–10%) than West African cities such as Dakar and Abidjan. Where coverage levels are low but cities have extensive trunk sewer systems, the costs of connecting households through feeder systems may not be prohibitive. Costs rise rapidly, however, where household connections would require large investments in trunk sewerage provision.

In some cities coverage rates are high but sewerage systems are in extreme disrepair. Delhi has many of the trappings of a developed country sanitation model—but appearances belie some serious problems. A large proportion of the city's 5,600 kilometres of feeder sewers are silted, and less than 15% of the trunk sewer is functioning. The 17 sewerage plants that serve the city have the capacity to process less than half the waste produced, and most operate far below capacity. The result: less than a fifth of the city's waste is processed before it is dumped into the Yamuna River, transmitting risks downstream.⁴ In Latin America many cities have feeder and trunk sewerage systems that cover a large section of the population. But sewage treatment capacity is very limited: less than a fifth of the wastewater in Brazil and Mexico is treated.⁵

Infrastructure for sanitation extends far beyond the sewer. In cities like Jakarta and Manila the limited coverage of the sewerage system has given rise to a highly developed infrastructure of pit latrines. That infrastructure makes it possible to remove waste from households, but much of it ends in rivers. Pit latrines and septic tanks need to be emptied regularly, otherwise they overflow, block drainage channels and cause acute sanitation problems. The problem in Manila is that the pit latrine infrastructure is more developed than the waste treatment and disposal infrastructure. Many cities in Sub-Saharan Africa face the same problem. For example, an estimated 13% of latrines in Kibera, Nairobi, are unusable because they are too full.⁶ Emptying latrines in densely populated urban areas requires an extensive service

Box 3.1

Disability and sanitation

For people with disabilities, the physical presence of an improved sanitation facility is not the same as access. People with disabilities face special problems in households that lack improved sanitation.

Disability is not a side issue in sanitation policy. The WHO estimates that some 10% of the world's population has some impairment that restricts mobility. The overall number is on the increase, due to ageing populations and the rise in chronic illness, traffic accidents and injuries from armed conflict. The human consequences of disability are often more severe in developing countries because of widespread poverty and more limited social welfare programmes.

People with disabilities are among the most vulnerable members of society—and among the poorest. A vicious cycle links disability and chronic poverty: if you are poor you are more likely to be disabled, and if you are disabled you are more likely to be poor. In Ecuador 50% of people with disabilities belong to the lowest 40% of the income distribution. Similarly, surveys of the living conditions of people with disabilities in Malawi, Namibia and Zimbabwe show that they live in households with lower than average incomes. In Namibia 56% of households with a disabled member have no one employed in the formal sector, compared with 41% for households with no disabled members.

Some household surveys have captured the special sanitation disadvantages facing people with disabilities. In Namibia households with disabled people are less likely to have access to a private flush toilet and more likely to resort to using the bush. Inaccessible toilets in public spaces such as schools

and hospitals can affect access to education and health services. The United Nations Educational, Scientific and Cultural Organization estimates that 90% of children with disabilities in developing countries do not attend school in part because of inaccessible toilets. In Uganda the father of a disabled child who was so eager to go to school that he would not drink or eat until evening because he would otherwise need to use the toilet, reports:

My son you see here today suffers a lot. He never takes breakfast and any meal at school until he comes back home. The school toilets are filthy. The fact that he simply crawls, and does not have a wheelchair, makes him fear to enter the toilets, which are already dirty. Coupled to this is the fact that even the toilets do not have wide doors to allow our ordinary tricycle to enter. So the whole day he goes without food until he comes back home.

There is a widespread perception that addressing disability will require investments and technology beyond the capacity of households and providers. But often only minor changes are needed to give people with disabilities access to ordinary water and sanitation services. The additional costs are minimal: research indicates that incorporating “access for all” features into the design from the outset adds only 1% to the cost, compared with the far greater expense of renovating or adapting existing facilities. Five South African case studies covering a variety of applications suggest that the cost of providing accessibility can be as low as 0.5%–1% of the cost of a project. In the Ikwezi Community Centre in Gugulethu, east of Cape Town, the additional cost of providing accessible toilet facilities was 0.31%.

Source: CONADIS and others 2004; SINTEF Unimed 2002, 2003a,b; Jones and Reed 2005; Metts 2000; Metts 2000, annex I.

infrastructure. Sludge has to be removed manually or through suction pumps, transferred to trucks and delivered to waste disposal sites. If disposal sites are not properly maintained, effluents can seep into groundwater and flow into streams and rivers, creating public health hazards.

Quantifying quality and equity

Data problems loom large in dealing with sanitation. Some countries (Kenya and Tanzania to name two) register implausibly high sanitation coverage figures, while others (Brazil) have far higher rates of coverage than WHO/UNICEF data indicate.⁷ Moreover, data on coverage say little about quality. Broken or poorly functioning improved pit latrines may inflate coverage rates, but they pose huge public health risks for families and communities.

While inadequate sanitation causes health risks and losses of dignity for all who are affected, people with disabilities face special problems. In most low-income countries national census data and household surveys are creating a stronger information base for understanding quality and coverage problems. However, the data sources are seldom detailed enough to identify the districts, neighbourhoods, income levels and other markers for disadvantage that governments and service providers need to build up a map of who is not served. This matters because the distribution of disadvantage has implications for the design of public policies. Data and policy responses have been found particularly wanting in relation to disability (box 3.1)

The water-sanitation-hygiene benefits loop

Climbing the sanitation ladder holds the prospect of large public health benefits. But advances in sanitation work best when associated with progress in water and hygiene.

Cross-country studies show that the method of disposing of excreta is one of the strongest determinants of child survival. On average, the transition from unimproved to improved sanitation is accompanied by a more than 30% reduction in child mortality, with flush toilets

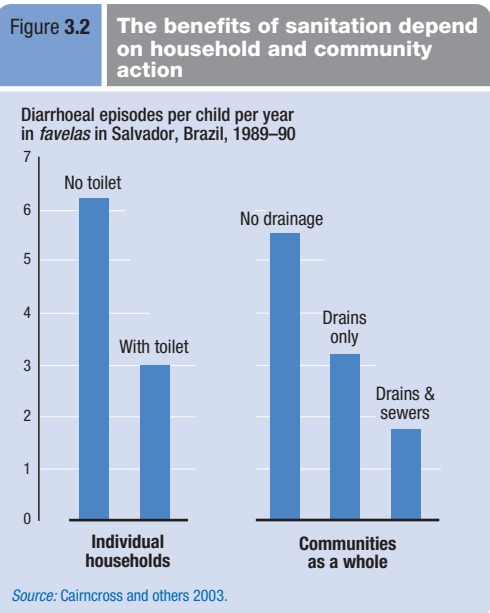
associated with far larger reductions than pit latrines.⁸

Improved sanitation helps to break the faecal-oral transmission route that perpetuates the public health problems outlined in chapter 1. Sanitation bestows health benefits at two levels. The household that invests in a latrine secures many advantages, but a possibly greater benefit accrues to the community.

This can be illustrated by data from *favelas* in Salvador, Brazil (figure 3.2). The incidence of diarrhoea is twice as high among children in households without toilets as among children in households with sanitation, while it is three times greater for children in communities without sanitation infrastructure than in communities with drains and sewers.⁹ Thus the absence of measures to promote the development of sanitation infrastructure can limit the advantages associated with household investments in sanitation.¹⁰ Conversely, when a household installs a latrine, it not only protects them from contact with their own excreta but also helps protect their neighbors. The strong externalities associated with individual and community investments in sanitation make a solid case for public policies—such as government spending, subsidies and regulation—to promote such investments.

Hygiene is another predictor of public health. Hands transmit pathogens to foodstuffs

The transition from unimproved to improved sanitation is accompanied by a more than 30% reduction in child mortality



Just a few generations ago people living in the great cities of Europe and the United States were facing grave public health threats as a result of unclean water and poor sanitation

and beverages and to the mouths of susceptible hosts. Because diarrhoeal diseases are of faecal origin, hand washing with soap and water has been identified as a major determinant of reduced child mortality, along with interventions that prevent faecal material from entering the domestic environment of children.¹¹

Evidence from Burkina Faso demonstrates the interaction between sanitation and hygiene. In the mid-1990s the country's second largest city, Bobo-Dioulasso, had a well managed water supply system and most households had pit latrines, but children were still at risk from poor hygiene. The Ministry of Health and Community Groups promoted behavioural changes that reduced the incidence of diarrhoea—for example, by encouraging mothers to wash their hands with soap and water after changing diapers. Over three years the programme averted some 9,000 diarrhoea episodes, 800 outpatient visits, 300 hospital referrals and 100 deaths—at a cost of \$0.30 per inhabitant.¹²

Behavioural factors may be important in hygiene, but access to clean water is essential. One study in villages in Kyrgyzstan found that few people washed their hands and that almost half of households disposed of faeces in gardens or streets.¹³ The problem was not that they were ignorant of the need for hygiene; they just had few opportunities to practice it in households that lacked water supplies and could not afford soap. Hand-washing rates were three times higher in households with piped water and washstands.

Attempting to separate the effects of water, sanitation and hygiene is a popular exercise—but an unhelpful one. In today's rich countries the great public works that drove the water and sanitation revolutions—the pipes, sewers, water filtration and wastewater treatment plants—were pivotal. But so were micro-level public health changes encouraged through education. Campaigns to promote hand washing, breastfeeding and boiling water for baby bottles increased the returns on investment in public works. What is important is that public policies expand access to infrastructure and unlock the complementarities that operate across the artificial frontiers between water, hygiene and sanitation. Children are among the most effective agents for change (box 3.2).

Clean water, the sanitary removal of excreta and personal hygiene are the three foundations for any strategy to enhance public health. Collectively, these are the most potent antidotes to the parasitic diseases and other infections transmitted through flies and other vectors that blight so many lives in areas where stagnant water is the primary source for drinking, cooking and washing. While clean water and personal hygiene can make a difference on their own, the benefits for public health will be diminished without adequate sanitation, drainage and wider infrastructure for disposing of excreta. That is why public policies for water and sanitation need to be seen as part of an integrated strategy.

Box 3.2 Children as agents of change

The classroom is one of the best places for effecting positive changes in hygiene. Teaching children hand washing and other good hygiene habits protects their health and promotes transformations beyond school. In Mozambique a national campaign trained children to teach other children about hand washing and sanitation-related problems. In China and Nigeria UNICEF-supported school-based hygiene projects report increases of 75%–80% in hand washing with soap.

In some countries hygiene and sanitation have been brought into the national curriculum. In Tajikistan more than 11,000 students are engaged in an outreach programme on sanitation. In Bangladesh schools and nongovernmental organizations formed student brigades to take hygiene and sanitation messages from their schools back to their communities.

Such school-based programmes provide adequate water and sanitation and separate facilities for boys and girls.

Source: IRC International Water and Sanitation Centre 2004; International Training Network Centre 2003; UNICEF and IRC International Water and Sanitation Centre 2005; UNICEF 2005a, 2006a.

It is distressing to see a child's future threatened or diminished by preventable disease. The rights to health services and to safe, clean, affordable water are fundamental to a life of dignity and are protected by international law. Yet millions of people die of water-related diseases annually, and millions more suffer needlessly. None of us should turn a blind eye to the shocking consequences of inadequate access to clean water and to sanitation set out in this Report.

The scale of the problem in water and sanitation poses a daunting challenge, but one we can overcome. Just a few generations ago people living in the great cities of Europe and the United States were facing grave public health threats as a result of unclean water and poor sanitation. At the end of the 19th century those threats were addressed through concerted political action at a national level. At the start of the 21st century we need to extend the leadership that made progress possible in today's rich countries to the global stage.

My colleagues at The Carter Center and I are working to eradicate Guinea worm disease (dracunculiasis) and control trachoma, two horrible afflictions that can be prevented by providing access to clean water, sanitation and health services. As recently as 50 years ago trachoma, which is the world's leading cause of preventable blindness, still affected parts of the United States, including my home town of Plains, Georgia. Though today we know how to avoid such diseases, more than 1.4 million children still die each year from intestinal parasites, and millions of people throughout the developing world continue to suffer from trachoma. But there has been progress.

Guinea worm, a parasitic waterborne disease, is poised to be the first disease to be eradicated without a vaccine or medical treatment. The presence of Guinea worm disease in a geographic area indicates abject poverty, including the absence of safe drinking water. The disease is so painful and debilitating that its effects reach far beyond a single victim, crippling agricultural production and reducing school attendance. It devastates already impoverished communities and further prevents them from achieving good health and economic prosperity.

Guinea worm became the second disease in history to be targeted for eradication following the inauguration of the International Drinking Water Supply and Sanitation Decade (1981–90). In 1986 The Carter Center, the US Centers for Disease Control and Prevention, the United Nations Children's Fund, the World Health Organization and the countries plagued by Guinea worm embraced the challenge of eradicating the disease.

When the programme began, there were approximately 3.5 million cases, crippling millions of people in 20 countries in Africa and Asia. Since then, Guinea worm disease has been reduced by more than 99.7%. In 2005 only 10,674 cases of dracunculiasis were reported in nine countries—all in Africa. Today, coalition partners, in collaboration with thousands of dedicated community health workers, continue to intensify efforts as we fight the last fraction of 1% of Guinea worm disease. As an active participant in the Guinea worm campaign, my primary objective is the eradication of this terrible scourge. Our progress toward this goal gives me confidence that together we can eliminate this disease within my lifetime.

More must be done to eradicate Guinea worm, but the larger task is to provide safe drinking water and sanitation to all. Halving the number of people who lack water and sanitation by 2015 as envisaged under the Millennium Development Goals is the first step. Failure to achieve that target would set back the entire Millennium Development Goal project. Without progress in water and sanitation, we cannot accelerate social progress in other areas, such as child survival, access to education and reduction of extreme poverty.

It is fitting that as we approach the eradication of Guinea worm disease another major international effort is under way to provide safe water to 1.1 billion people and adequate sanitation to 2.6 billion people. These noble efforts will help alleviate the greatest challenge of our time—to bridge the widening chasm between the rich and the poor in our world.



Jimmy Carter, 39th President, United States;
Founder, The Carter Center; Nobel Peace Prize Laureate 2002

Effective national policies are even more conspicuously absent for sanitation than for water

The daunting scale of human suffering rooted in the global sanitation deficit can create the impression of an insurmountable problem. That impression is wrong. One of the lessons of the past decade is that concerted national and international action can make a difference. Twenty years ago Guinea worm was a major cause of suffering and poverty in a large swathe of countries across Sub-Saharan Africa. In the mid-1980s some 3.5 million people were infected with dracunculiasis, the Guinea worm parasite that enters the body when people drink water from stagnant pools containing Guinea worm larvae. Inside the body the parasite can grow up to three feet in length. When they leave the body, they cause intense blistering and often crippling effects. Today, following the intervention of a global partnership involving UNICEF, the WHO and the Carter Center, Guinea worm has almost been consigned to the

history books (see special contribution by former US President Jimmy Carter). The disease has been eradicated from 11 countries, eight of them in Africa. While major pockets of infection remain—notably in Sudan—this battle against diseases caused by stagnant water and poor sanitation has almost been won.

Success in the battle against Guinea worm disease has extended the human capabilities of countless millions of people. Further, more urgent action is needed to tackle problems such as trachoma and other parasitic infections.

Ultimately, however, for global initiatives to achieve optimal effects they have to be backed by the development of an infrastructure that provides households with clean water and sanitation. National strategies backed by a global plan of action to mobilize the resources needed to bring clean water and sanitation to all hold the key to success.

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The vast deficit in sanitation

Why does sanitation lag so far behind water?

Toilets may be an unlikely catalyst for human progress—but the evidence that they are is overwhelming. Adequate sanitation has the potential to produce cumulative benefits in public health, employment and economic growth. So why is it that at the start of the 21st century so much human potential is being wasted for want of some fairly simple technologies? And why does sanitation lag so far behind water in public provision? These questions are as germane to debates on human development today as they were in developed countries more than a century ago. Six interlocking barriers provide answers: national policy, behaviour, perception, poverty, gender and supply. None of the six barriers can be considered in isolation. But each helps to explain why progress towards the long-standing goal of sanitation for all has been so slow.

The national policy barrier

Chapter 2 highlighted national policies and national political leadership in accelerating access to water. Effective national policies are even more conspicuously absent for sanitation than for water. The state of a country's sanitation may shape its prospects for human development, and yet sanitation seldom, if ever, figures prominently on the national political agenda.

That is true even for countries that have progressed rapidly in water provision. South Africa has not matched its success in expanding access and reducing inequality in water provision with a comparable effort in sanitation. The same is true for Morocco. In this case the National Drinking Water Office has been a highly effective body in expanding access to water across many cities and in rural areas. However, progress in sanitation has been held back by a far

weaker national strategy, the fragmentation of governance systems, inadequate financing, and capacity constraints in rural municipalities.

The behaviour barrier

Weak national policy frameworks and the lower priority accorded sanitation relative to water in part reflect the signals received from households. Participatory research exercises show that people tend to attach a higher priority to water than to sanitation. There are some obvious explanations. Lack of clean water is a more immediate threat to life than the absence of a toilet. Moreover, water piped into a household provides rapid and tangible benefits in time saved and health risks averted, regardless of what other households do.

The benefits of sanitation can appear more contingent on factors beyond the household. For example, the public health benefits of installing a latrine may not materialize unless other households also act: installation in one household does not provide protection against the excrement of other households in slums with poor drainage. In addition, installation of a latrine may be seen as a public good, with the community deriving benefits in the form of reduced health risks and the household deriving fewer private gains than in water. For a household the costs of not having access to clean water may appear more evident than those of long-established sanitation practices, such as defecating in fields or streams—and the benefits of improved sanitation are not as widely understood as those of access to clean water.

The perception barrier

For governments and many development organizations the case for public action in sanitation rests on the public benefits of health and wealth. Things often look different at the household level. Village research in Cambodia, Indonesia and Viet Nam consistently finds “a clean home and village environment free of bad smells and flies” as the most important benefit identified by households, followed by convenience. Health benefits rank third. In Benin,

too, rural households attach a higher weight to household status—linked to the absence of smells—and to convenience than to health.¹⁴

The fact that households often view better sanitation as a private amenity with private benefits rather than a public responsibility may have weakened the perceived political imperative to develop national strategies. Understanding what people value about improved sanitation and why they value it is a first step towards a demand-responsive approach. But demand cannot be treated as fixed. Education, social marketing and political campaigns can shift demand patterns by raising aspirations and creating new expectations.

The poverty barrier

The cost of improved sanitation can be prohibitive when large segments of the population lack access. The ranks of people without improved sanitation are less dominated by the very poor than is the case for water, but poverty remains a major constraint to gaining access. Nearly 1.4 billion people without access to sanitation live on less than \$2 a day. For most of them, even low-cost improved technology may be beyond financial reach.

The public health benefits of installing a latrine may not materialize unless other households also act

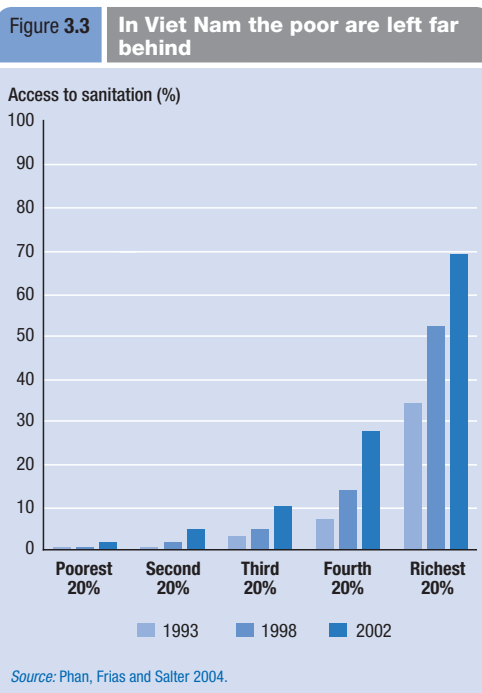
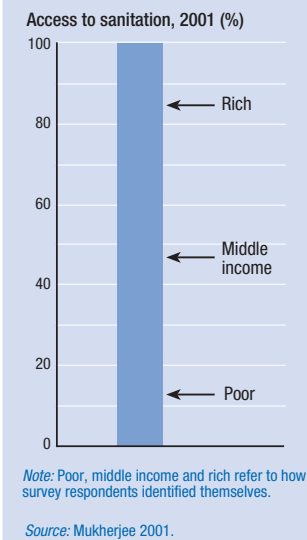


Figure 3.4 Wealth gaps in sanitation in Cambodia



Consider Viet Nam, which has already achieved the Millennium Development Goal target for sanitation. Rural coverage has increased rapidly, albeit from a low base. But the poorest households have been left far behind (figure 3.3). In Cambodia the daily wage for rural labourers does not cover a family's basic nutritional requirements, leaving nothing for health, clothing and education. It would take 20 days' wages to purchase a simple pit latrine—helping to explain the very large discrepancy between coverage rates for the rich and the poor (figure 3.4). In Kibera, Nairobi, constructing a pit latrine costs about \$45, or two months of income for someone earning the minimum wage. To help poor households meet the financing requirements of improved sanitation, arrangements are needed that provide subsidies or allow payments to be spread over time through microcredit.

The gender barrier

Gender inequalities help to explain the low demand for sanitation in many communities. Evidence from many countries suggests that women place a higher value on access to private sanitation facilities than do men—an outcome that reflects the greater disadvantage women face through insecurity, loss of dignity and adverse health outcomes associated with lack of access. Research in Cambodia, Indonesia and Viet Nam found that women consistently give higher value for cost scores to toilets than do men.¹⁵

But the weak voice of women in shaping spending priorities within the household means

that the constituency with the strongest expressed demand for sanitation has little control over expenditures. For the same reason the priority that women attach to sanitation is seldom reflected in decision-making beyond the household, in political structures extending from the village through local government to national levels. Empowering women may be one of the most successful mechanisms for increasing effective demand.

The supply barrier

Turning from demand to supply shows that progress is impeded not just by the absence of affordable sanitation technology, but also by the oversupply of inappropriate technologies, leading to a mismatch between what people want and what governments have offered. For example, pour-flush latrines provided through government programmes have often had low uptake rates because communities lack secure water supplies. In other cases the technologies marketed through government agencies have been difficult or expensive to maintain. Products designed by engineers without reference to community needs and priorities and delivered through unaccountable government agencies have left a legacy of abandoned sanitation products. Time horizon is another factor. Evidence from many countries suggests that progress in sanitation, far more than in water, requires a planning frame of 10–15 years, whereas average donor cycles and national planning cycles operate over 2–3 year cycles.

Bringing sanitation for all within reach

The slow progress in sanitation has long been a source of concern. After more than three decades of high-level conferences, sweeping policy shifts and ambitious—but unrealized—targets, there is a strong undercurrent of pessimism surround-

ing the Millennium Development Goal for sanitation. That pessimism is as unjustified as the overweening optimism of earlier approaches.

From a distance the global sanitation picture is bleak. But a closer look reveals a striking

Orangi is a large, low-income informal settlement—or *katchi abadi*—in Karachi, Pakistan. Home to more than a million people, it is a success story of the power of communities to expand access to sanitation.

In 1980 a local nongovernmental organization started to work through the Orangi Pilot Project with local communities to tackle the settlement's appalling sanitation situation. The focal point for mobilization was the lane. Through dialogue and education lane residents were urged to form groups to construct sewer channels to collect waste from their homes. Cooperation between lane managers then facilitated the construction of neighbourhood channels

to collect the waste from multiple lanes. Initially, the channels were discharged into nearby drains. But after a period of dialogue with municipal authorities, the city agreed to finance a trunk sewer to collect the waste and transport it from the community.

Infant mortality rates in the slum have fallen from 130 deaths per 1,000 live births in the early 1980s to fewer than 40 today. Almost 100,000 families in more than 6,000 lanes representing 90% of the population have been involved. Training community workers in maintenance and labour mobilization has reduced the costs of sanitation provision to a fifth of the cost of official provision, enabling the project to recover costs without making services unaffordable.

Source: Satterthwaite 2006; Hasan 2005; Zaidi 2001.

proliferation of local and even national success stories within this larger picture. In some cases the people at the distressed end of the sanitation crisis—the slum dwellers and the rural communities lacking even basic sanitation—have driven change from below. In other cases government agencies and service providers have taken the lead or played a key role in scaling up actions initiated from below. What unites the success stories are the twin principles of shared rights and joint responsibilities, building blocks for any social contract between government and citizens. In this broad framework community demand, appropriate technology and demand-responsive and accountable service provision are recurrent themes.

Action from below makes a difference

The principles of shared rights and joint responsibilities matter in a very practical way. In urban slums with large and highly concentrated populations, the success of any community initiative depends on individual participation, especially for improved sanitation. Through mobilization from below the Orangi Pilot Project in Karachi, Pakistan, has evolved over the past two decades into a programme that brings sanitation to millions of slum dwellers.¹⁶ Near-universal participation has been based on a collective perception of benefits and an acceptance of joint responsibility for unlocking those benefits (box 3.3).

The Orangi Project, which began as a small community-led initiative, scaled up through cooperation with local governments. Scaling up matters because small isolated projects cannot spark or sustain national progress. At the same time the energy and innovation of community actions can strengthen government capacity to deliver change.

In India in the early 1990s the National Slum Dwellers Federation (NSDF); the Society for the Promotion of Area Resource Centres (SPARC), a Mumbai-based nongovernmental organization (NGO); and Mahila Milan, a network of savings groups formed by women slum and pavement dwellers, pioneered a new approach to design and manage public toilet blocks in response to the inability of poor households to install latrines in high-density areas. Construction was preceded by slum surveys, savings mobilization and the development of organizations to manage the toilets. Design innovations included the provision of separate facilities for men and women. Initially, local authorities discouraged these efforts. But the model has since been adopted in Pune, a city of more than 2 million people, through collaboration between municipal authorities and NSDF, SPARC, and Mahila Milan. Between 1999 and 2001 more than 440 toilet blocks were constructed, with more than 10,000 new toilets. Financing has been provided through the government of Maharashtra, with NGOs taking responsibility for design and maintenance.

Community participation is probably the biggest influence on the success—or failure—of

But the division between household or community action and government-led public action is misleading and unhelpful. Government leadership remains vital

public sanitation facilities. Until recently facilities created by municipalities had a weak record in provision, with poor maintenance, inappropriate location and similar missteps leading to low public use. That record has started to change. City authorities in Windhoek, Namibia, recognized that government sanitation facilities were not reaching the poor because quality standards made costs prohibitive. Working with the National Shack Dwellers Federation, municipal authorities created a new legislative framework enabling neighbourhood committees to build and manage their own toilet blocks. Standards were relaxed, and regulations were applied more flexibly. In Chittagong, Bangladesh, the international NGO WaterAid, local NGOs and municipal authorities have developed cluster latrines for use by 150 households at a cost of \$0.60 a month per household.¹⁷ These latrines, maintained through community-based organizations, have brought sanitation to far more people than would have been possible through individual household purchases.

The failure of past supply-led approaches has produced a major shift in policy orientation. One of the most profound expressions of the shift is the community-led total sanitation campaign, an approach designed to build demand for improved sanitation.¹⁸ In Bangladesh the total sanitation campaign was begun by local NGOs but has since been scaled up into a national programme. Its success has helped keep the country on track for the sanitation Millennium Development Goal target (box 3.4).

The total sanitation campaign approach begins with a community-based appraisal of current sanitation practices, which usually include open defecation.¹⁹ Residents undertake a mapping exercise with households to identify defecation sites, the transmission routes that cause disease and the contribution of each household to the problem. The aim is to appeal to three basic drivers for change: disgust, self-interest and a sense of individual responsibility for community welfare. This approach has been widely developed and deployed with some success across such countries as Cambodia, China, India and Zambia.

Innovative design and marketing can bring improved sanitation within the reach of even the most disadvantaged. Take Sulabh in India.

Founded on Gandhian principles, it has developed products aimed at some of the poorest sections of Indian society, including low castes and migrant workers. Most striking are its scale of operation—providing improved sanitation to some 10 million people—and its business model (box 3.5).

Government leadership is vital

The central role of households in financing sanitation, the high-profile failure of some heavily subsidized government initiatives and the crucial role of household demand as a catalyst for change have spurred some people to advocate a minimalist role for government. But the division between household or community action and government-led public action is misleading and unhelpful. Government leadership remains vital.

Setting national strategies

In sanitation as in water the starting point for successful expansion of coverage is effective national planning. Many countries need to change the mindset that undervalues sanitation. That mindset is often reflected in the institutional location of responsibility for sanitation in government. One common arrangement is to assign sanitation to a technical unit within the ministry of health, an approach that limits the scope for bold political initiatives. Another problem is the fragmentation of authority. In Ghana roles and responsibilities for water are well defined within a national planning framework. That is not the case for sanitation, where authority is divided among the Ministry for Water Resources, Works and Housing and a range of other line ministries. In Niger sanitation comes under the Ministry of Water, but coordination for sanitation takes place through a national committee with limited authority. In each case, national planning would be enhanced if it were led by a senior ministerial figure coordinating the development and implementation of sanitation strategies.

Some governments have a strong track record in providing access to sanitation. Since 1990 Thailand has increased the national sanitation coverage rate from 80% to 100%. Progress

Ten years ago Bangladesh, among the poorest countries in the world, had one of the lowest levels of coverage for rural sanitation. Today, it has ambitious plans to achieve nationwide sanitation coverage by 2010. Strongly supported by the country's aid partners, those plans target an achievable annual increase in sanitation coverage of 2.4 million households.

The total sanitation campaign is central to Bangladesh's success. Pioneered by a Bangladeshi NGO in the late 1990s, it now involves more than 600 NGOs that work with local district authorities in marketing improved sanitation messages.

The starting point is engagement with local communities in identifying the problems associated with open defecation by calculating the amount of excreta deposited in the village environment, mapping dirty zones and identifying transmission routes to diarrhoea and wider public health problems. The "walk of shame" to defecation zones and the "excreta calculation" are the two initial tools for generating shared community concern. Communities discuss and document open defecation and consider the health consequences. Once interest is ignited, there is momentum for villagers to work with government agencies, NGOs, religious organizations and others to establish sanitation forums to identify concerns.

As the campaign has developed and demand for sanitation has increased, a vibrant small business sector has emerged. Bangladesh is now a world leader in producing, marketing and maintaining low-cost latrines. At the end of 2000 there were 2,400 registered small-scale latrine production centres. That figure has since risen to 3,000, demonstrating again the capacity of small-scale providers to respond to local markets. The cost of latrines has fallen sharply. Meanwhile, village efforts have been supported by NGO-led microfinance schemes, mobilizing savings and providing loans.

While the programme has been based on demand-responsive approaches, national policy has also been important. Successive governments have made rural sanitation a priority. The National Policy for Water and Sanitation, drawn up in 1998, establishes a policy framework for partnerships of small-scale entrepreneurs and community groups and provides support for marketing and training through local and national government agencies.

To get a sense of the effectiveness of this partnership, compare Bangladesh with India. Ten years ago the two countries faced similar problems. Since then, India has enjoyed far more rapid economic growth, widening the income gap between the two countries. But in rural sanitation India has fallen behind Bangladesh (see table), even though some Indian states have made progress.

In the decade to 2015 the biggest challenges are to sustain the momentum built up over recent years and to reduce inequalities in access. While data are patchy, the Bangladeshi government is concerned that the improved national sanitation coverage rate may hide the fact that poor rural households are unable to finance even low-cost latrines. Its response has been to allocate the entire share of the annual development programme for sanitation to subsidize demand among the poorest 20% of the population.

Improvements in sanitation and infant mortality: Bangladesh and India, 1990–2004

Indicator	Bangladesh			India		
	1990	2004	Change	1990	2004	Change
Sanitation, national (%)	20	39	19	14	33	19
Rural sanitation (%)	12	35	23	3	22	19
Infant mortality (per 1,000 live births)	96	56	–40	84	62	–22

Source: Indicator table 10; WHO and UNICEF 2006.

Source: Bangladesh 1998, 2005; Kar and Pasteur 2005; Practical Action Consulting 2006a; VERC 2002; WSP-SA 2005.

in rural areas has been particularly marked: more than 13 million people in rural areas have gained access in two decades. These outcomes

reflect the priority accorded to sanitation as part of national planning.²⁰ Under the national strategy every district has been required to identify

Founded in 1970 to address the sanitation problems facing low-caste, low-income groups in India, Sulabh has emerged as one of the world's largest nongovernmental providers of sanitation facilities. Apart from its scale, what makes its delivery system of wider interest is its commercial viability.

In a little over three decades Sulabh has grown from a modest project in Bihar State to an operation that spans 1,080 cities and towns and 455 districts in 27 Indian states. It has constructed more than 7,500 public toilet blocks and 1.2 million private latrines, giving access to sanitation to 10 million people. Research in Hyderabad has found that about half the users of Sulabh facilities have below poverty-threshold wages, with petty traders, manual labourers and a wide range of informal sector workers dominating.

Sulabh follows a business not a charity model. It enters into contracts with municipalities and public sector providers to construct toilet blocks with public funds. Local authorities provide land and finance the initial connections to utility services, but all recurrent costs are financed through user charges. Fees are set at about 1 rupee (2 cents), affordable to all but the very poorest. Access is free for children and people with disabilities. In 29 slums Sulabh has built toilet blocks that operate without user fees under service contracts with municipalities.

Sulabh also produces and markets latrines, with costs ranging from \$10 to \$500. Low-cost latrines designed for low-income households are marketed with the help of a government subsidy that meets half of the cost and soft loans repayable over 12–30 years.

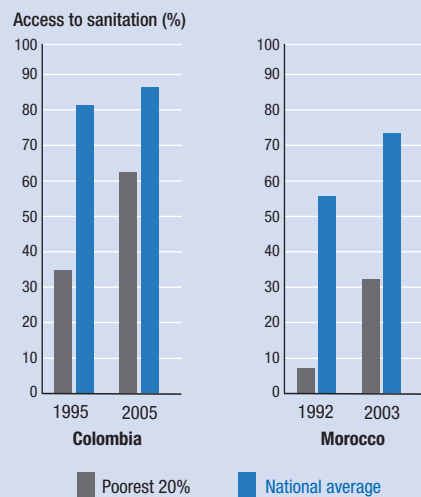
Source: Bhatia 2004; Chary, Narender and Rao 2003; Patak 2006.

coverage gaps from the village upwards—and to develop strategies for closing them. Government agencies in Thailand developed technologies that were affordable and accessible to the poor, provided training in maintenance and financed revolving funds to meet the capital costs. Community health programmes increased awareness of the health benefits of sanitation.

Government success in some areas can highlight public policy failures in others. Both Colombia and Morocco have expanded access to improved sanitation for some of the poorest in society. The coverage rate in Colombia—about 86% in 2005—is far higher than its national income would predict (figure 3.5). In Morocco coverage for the poorest 20% has expanded fourfold since 1992. But in both countries progress has been skewed by a distinct bias that is exacerbating inequalities between urban and rural areas.²¹

The urban bias can be traced in part to national policy planning. In Colombia responsibility for water and sanitation has been devolved to municipalities with a strong record in service provision. Fiscal transfers from the central government to municipalities account for two-thirds of investment in water and sanitation, and poorer and smaller municipalities get more per capita.²² Other central government programmes target poor households for connection and service provision subsidies (see chapter 2) and provide smaller utilities with loans and technical assistance. This has brought tangible benefits for poor urban households. In Morocco, too, government policies have created incentives for utilities to

Figure 3.5 Pro-poor growth in access to sanitation in Colombia and Morocco



Source: Human Development Report Office calculations based on Measure DHS 2006.

extend provision to low-income urban households. The problem in both countries is that there is no effective national sanitation strategy for rural areas. For example, Colombia's National Development Plan targets coverage in urban areas but not in rural areas. Policy goals and national standards are set for piped connections and networks, but pit latrines may be more appropriate in rural areas.

Partnering with communities

Creating an environment in which sanitation is perceived both as a household responsibility and as a community right can change the attitudes and behaviours that limit progress. Such an environment requires a dynamic interaction between government agencies and communities. It means drawing on the social capital of communities and building a sense of social solidarity and shared citizenship, with governments creating a policy environment that enables all people to progress towards improved sanitation.

Some of the most conspicuous success stories in sanitation are the product of partnerships between governments and communities, with a wide range of civil society organizations as a bridge. Public policy can create demand and scale up community-led initiatives. The Bangladesh total sanitation campaign is one example. Another is the rapid progress in rural sanitation in Lesotho, where a strong national planning process and political leadership, with a strong emphasis on community involvement, yielded real progress (box 3.6).²³

Many government interventions have been justifiably criticized for supplying inappropriate technology, but the success stories are less widely appreciated. In Brazil municipal governments supported a shift in emphasis from conventional sewerage technology to a lower cost alternative, the condominial system. That system has facilitated a sustained increase in coverage rates.²⁴

In a conventional sewerage system service is provided to each household unit. In a condominium model service is provided to blocks or groups of residences, avoiding the need for pipes in each lot or even each street of a neighbourhood. The network has two parts. The citywide

Box 3.6

Lesotho—progress in rural sanitation

Twenty years ago Lesotho began a small pilot project for rural sanitation with financial assistance from the United Nations Development Programme and the United Nations Children's Fund. Since then, rural coverage has increased from 15% to 32%—higher than for many countries with higher average incomes. The current target is full coverage by 2010.

The programme has been creating demand and providing support for training in the construction of latrines. District sanitation teams work through local community structures to increase awareness of the benefits of sanitation, creating demand for improved latrines. The supply response emerged through small-scale local providers, supported through training by local government agencies.

The integration of health and hygiene education with construction and technical activities is supported through national coordination between the Ministry of the Interior (concerned mainly with hardware aspects) and the Ministry of Health. Coordination with the water supply sector has also improved.

One of the challenges looking to the 2010 target date is to reach some of the country's poorest households. The full cost-recovery and zero-subsidy policy has created incentives for innovation. But even basic latrines are still beyond the means of the very poor. Only recently have measures been put in place to reduce the costs of latrines through microcredit programmes offering extended loan repayment periods.

Source: Jenkins and Sugden 2006; World Bank 2004b.

system provides a trunk connected to parallel microsystems that receive waste from the condominial blocks. These systems take into account local topography and drainage conditions, dramatically reducing the length of the piped system. And they can be operated independently until they can be connected to a city-wide trunk.

The development of the condominial system in Brazil has been about politics as much as technology. Community participation in decision-making is widely perceived as both a right and a duty of citizenship, with the condominium providing a social unit to facilitate collective decisions. Condominium members have to agree on the appropriate location for the branch network and organize themselves to perform complementary activities, including construction and maintenance. This system is now a central part of the sewerage system serving more than 2 million people in Brasilia alone (box 3.7).

Creating conditions for progress

Government leadership in creating the conditions for progress in sanitation is vital for some obvious reasons. Communities or NGOs acting alone can

3

The vast deficit in sanitation

The condominal approach to sewerage systems in Brasilia—politics and technology

Developed in the 1980s to bring sanitation services to low-income households, the condominal system has emerged as a solution to sewerage management for whole urban areas, irrespective of income. The Water and Sewerage Company of Brasilia demonstrates how innovative technologies can be scaled up from small projects to cover whole cities.

In the early 1990s the lack of sanitation in the peri-urban areas of Brasilia and contamination of Lake Paranoa prompted municipal authorities to embark on a major sanitation programme. The company needed to extend the sewerage network to 1.7 million people. Conventional technologies would have been unaffordable, stimulating a search for low-cost alternatives.

After initial pilot studies the condominal model was adopted both for peri-urban neighbourhoods and for more affluent areas of the capital. Funds came from the Federal Development Bank and the Inter-American Development Bank, with additional contributions from the capital and the federal district. From 1993 to 2001 an estimated 188,000 condominal sewerage connections in the federal district benefited some 680,000 people.

Community involvement was central from the outset. Households had the option of doing the connection work themselves, under the supervision of the utility, or of paying for the connection. Fees were structured to reflect costs, with lower rates applied to households willing to install pipes in their yards and to be responsible for system maintenance.

What led to the success of the Brasilia model? First, the utility made a firm policy decision about the technology, communicated this decision clearly to the public and adapted its internal structure accordingly. Second, a decentralized sanitation system with the potential for integration into a citywide network offered considerable flexibility. Demand-responsive, it lent itself to application across condominal blocks and different microsystems. Third, community participation kept down costs and improved efficiency.

Source: Melo 2005.

create islands of success, sometimes on an impressive scale. But project-led advances cannot substitute for the financial, political and administrative resources that governments can bring to bear.

Consider West Bengal in India. Since 1990 the state government has developed a strategy for expanding rural sanitation involving long-term partnerships with international agencies such as UNICEF, state-level NGOs and other groups under the umbrella of India's national total sanitation campaign.²⁵ The West Bengal campaign is the only one in India with a dedicated unit—the State Institute of Panchayats and Rural Development—responsible for monitoring coverage, conducting reviews and evaluations and providing support and training to local government. The campaign emphasizes hygiene education and community involvement to generate demand. But government agencies and

NGOs have also been heavily involved in supply. Local governments have supported networks of rural sanitary marts to manufacture low-cost latrine slabs, with the government also supporting the training of masons to work in villages.

The results have been impressive. In 1990 when the state government launched its rural sanitation drive in Midnapur, then the largest district in India, coverage rates were less than 5%. The district now has 100% coverage. Across the state as a whole, 2 million toilets have been constructed and installed in the last five years, increasing state coverage of sanitation from 12% in 1991 to more than 40% today. Government subsidies cover about 40% of the cost of a latrine, but most public spending has gone into social marketing campaigns and programmes for latrine construction.

West Bengal's achievements over the past five years build on more than a decade of political and institutional investment. Evidence from other states highlights the problems of achieving rapid progress without these investments. For example, Andhra Pradesh launched a huge sanitation campaign in 1997. But the focus has been on relatively high-cost, heavily subsidized latrines (with an average price five times that in West Bengal). Evaluations indicate that the campaign has reached few poor people and that many of the new latrines have been abandoned. The problem is not the use of subsidies but the failure to target them and to develop demand through community partnerships.

The high costs of connecting to a sewer mean that on-site sanitation will remain the most viable option in many low-income areas. Public toilets on the model developed by Sulabh and others illustrate one approach for use in high population density areas. However, governments could do far more to create an enabling environment for the development of services such as pit emptying and disposal that are lacking in so many cities today. In effect, poor households are bearing the cost not just of constructing latrines, but also of providing the infrastructure for excreta disposal.

Public providers or public-private partnerships can make a difference. Municipal utilities can provide services or create the conditions for

their development through contracts with the private sector. In Dar es Salam municipal authorities issue licenses to small-scale companies to provide sludge removal services within a price range affordable to poor households. The companies are required to deposit the waste at authorized treatment sites. As more firms have entered the market, prices have fallen. One condition for the development of a properly regulated waste disposal infrastructure is the availability of waste disposal sites. In the Kibera slums of Nairobi small-scale providers operate on an informal basis during the rainy season, when they dump sludge to be carried away by rainwater. There are no immediate alternatives because there is no dedicated waste disposal site.

The financing problem

As with water, households wanting to connect to the formal sanitation network have to pay a connection charge and regular usage costs. For the vast majority of households without a connection installing pit latrines implies both financial costs and labour inputs. Overcoming the financing barrier is an important part of any strategy for accelerating progress.

In the past governments applied subsidies directly to sanitation hardware, attempting to increase demand by reducing price. Too often these subsidies disproportionately benefited higher income households, which were frequently the only households that could afford the sanitation facilities eligible for government support. This appears to have happened in Zimbabwe, where government subsidies supported household spending without any clear targeting to the poor. The sudden withdrawal of subsidies led to sharp reversals in toilet construction. In Mozambique a national programme for expanding urban sanitation supply built up over two decades collapsed at the end of the 1990s when a reduction in aid flows led to the withdrawal of government subsidies and a 400% increase in the price of latrine slabs.

Developing responsive markets

With new demand-responsive approaches the focus has shifted to stimulating demand. In

some cases these approaches have been based on the leverage of finance within communities. Bangladesh and Lesotho have zero-subsidy policies for the nonpoor, with most government financial support going into social marketing for latrines.²⁶ Implicit in this approach is an assumption that increased investment in technology and production will bring latrine prices down to affordable levels as the market develops over time.

That assumption is partially supported by the evidence. In Bangladesh the total sanitation campaign fostered highly innovative small firms specializing in providing and maintaining low-cost sanitation. In Lesotho public investment in training and marketing produced a strong private sector response. Prices for latrines fell, design improved, and small firms became highly attuned to working in local markets.²⁷ But there are limits to what the market can achieve when poverty is widespread. Both Bangladesh and Lesotho have found it difficult to expand access among the poorest sections of society—a problem that could retard progress if it is not addressed.

The experience of Viet Nam, a country with a strong record of increasing access to sanitation, is instructive. As already noted, national figures hide large inequalities in coverage between rich and poor and between urban and rural areas. Cost factors help to explain why these inequalities exist. Aid programmes are currently marketing latrines for low-income households for \$35–\$90.²⁸ On average, these households spend 72% of their income on food. Were the remainder of their income to go to the purchase of a latrine, this would imply an enormous diversion of resources from health and education.

Some governments have developed innovative strategies for cross-subsidizing sanitation. In Burkina Faso the public utility for water and sanitation levies a small sanitation surcharge on water users, with half the proceeds financing social marketing of sanitation. Another quarter of the levy supports the construction of improved sanitation facilities in low-income areas. The surcharge has been used to finance the installation of sanitation facilities in all primary schools in Ougadougou. Households are eligible to receive financial aid for improved pit latrines and pour-flush latrines. However,

Overcoming the financing barrier is an important part of any strategy for accelerating progress in sanitation

Most countries that have achieved rapid progress have mobilized household resources on a large scale, while supporting markets that provide technologies and maintenance

households are expected to finance 70%–80% of the cost of sanitation facilities.²⁹ These costs are high in relation to the resources of low-income people, so the very poorest households may not be reached.

Household financing and beyond

Most countries that have achieved rapid progress have mobilized household resources on a large scale, while supporting markets that provide technologies and maintenance. Again, the critical factor is the strength of the national policy process. In China progress in sanitation in rural areas was lagging far behind that in urban areas until the mid-1990s, holding back advances in health. Since then, rural sanitation has been an integral part of the national health strategy. Provincial and county governments oversee plans for meeting targets set by government. Resources have been invested in developing and marketing sanitary latrines designed for rural areas. Uptake has been impressive, with rural sanitation coverage doubling in five years. Financing comes from a range of sources, with users meeting 70% of the cost, village associations 15% and government about 15%. These figures provide an indication of the level of household resource mobilization, though questions of affordability for poor households remain.³⁰

In all developing countries household resources will remain a critical source of investment for financing sanitation. But there are limits to what the poorest households can afford. Many

governments and aid donors remain deeply averse to the use of subsidies for household sanitation. However, without subsidies adequate sanitation will likely remain beyond the reach of a large section of the developing world's population, with risks for public health as well as household poverty. While it is true that the history of subsidies in sanitation is not encouraging, that should not rule out innovative financing arrangements, like microfinance arrangements for the initial investments with payments spread over a longer period. In India Water-Aid has cooperated with local governments in developing such microfinance facilities.³¹ Initiatives of this type can be scaled up into national programmes if rooted in participative community systems. As governments seek to get countries on track for the 2015 Millennium Development Goal targets, it is important to place equity squarely on the agenda. For a large part of humanity, basic sanitation is likely to remain unaffordable in the foreseeable future. Without financial support for the poorest households, overly ambitious cost-recovery measures and zero-subsidy strategies will slow progress. Some of the costs will be borne by those who are excluded. But other costs will be transmitted across whole communities. The case for subsidies in sanitation, as in water, is rooted partly in the recognition that everyone is entitled to basic human rights, regardless of ability to pay, and partly in an acknowledgement that the costs of exclusion go beyond private households into the public sphere.

The way ahead

The sheer diversity of developing country experience in sanitation cautions against universal prescription. In some areas there are obvious parallels between water and sanitation. In others sanitation poses distinctive challenges because change involves not just reform of public policies and financing but often quite radical

behavioural change. Four broad themes emerge as indicators for future success.

First, national policies and political leadership matter. Countries as diverse as Bangladesh, China and Lesotho have all registered rapid progress in sanitation—and they have followed different policy paths. But in each case national

political leaders have sent a clear signal that sanitation is part of the national development policy. Colombia and Morocco have progressed in urban areas because they have strong municipal strategies for sanitation provision through utilities—but rural areas have suffered from weaker policy frameworks. Poverty Reduction Strategy Papers provide a focal point for national plans, but plans without credible and sustained political backing do not deliver optimal results. Strengthening the political and financial weight of line ministries and local government structures dealing with sanitation is a starting point for overcoming the current fragmentation.

Second, public participation has to be part of national planning—at all levels. The long history of top-down and supply-driven provision running up against demand barriers in communities is one product of weak participation. Involving local communities can identify low-cost, appropriate technology to improve coverage, as with the condominal programme in Brazil and the Orangi Pilot Project in Pakistan.

Third, accelerating progress requires identifying who is not served and why. Putting poor people at the centre of service provision by enabling them to monitor and discipline service providers, and by creating incentives for service providers to listen, is an overarching goal. Supplementing the current Millennium Development Goal target for sanitation with explicit targets for reducing inequalities based on wealth and location would help on two counts: it would sharpen the focus of public policy and raise the profile of inequality as a problem on the political agenda. Halving inequalities between the richest and poorest 20%, or between urban and rural areas, would be an obvious supplement to the Millennium Development Goal target of halving the national deficit in coverage levels. Gender inequalities are critical in holding back progress on sanitation. Increasing the voice of women in public policy debates, and in markets for sanitation technology, would strengthen incentives for better service provision. But breaking down gender inequalities goes beyond sanitation policy to deeply rooted intrahousehold power relations. Similarly, bringing the voice of slum dwellers, the rural poor and other

marginalized groups to national policy debates requires fundamental political changes.

Fourth, international partnerships can make a difference. Water and sanitation remain marked by weak and fragmented aid partnerships—and by consistent underfinancing, with sanitation the poor cousin. While several donors finance sanitation infrastructure, the dialogue on extending sanitation to the poor is underdeveloped. In sanitation, as in water, effective aid partnerships built on participative national planning processes could bring the Millennium Development Goal within reach. The global action plan proposal set out in chapter 1 could play a constructive role.

Three decades ago, international conferences on water and sanitation identified technology as the major barrier to progress. The invention and development of low-cost options, so the argument ran, would create the technological impetus to resolve the problem. More recently, financing has been identified as the major constraint. What national experiences and the case studies outlined in this chapter demonstrate is that technological and financial barriers can be overcome.

The biggest barrier in sanitation is the unwillingness of national and international political leaders to put excreta and its safe disposal on the international development agenda. Until recently another taboo subject was absent from the international development agenda—HIV/AIDS. That taboo has now been challenged in many countries by political leaders and coalitions committed to tackling head on a pandemic that has eroded human well-being on an unprecedented scale. So why has the sanitation taboo been so difficult to break down? Partly because, unlike HIV/AIDS, which affects the wealthy as well as the poor, the costs of the sanitation deficit are borne overwhelmingly by the poor. And partly because the human costs are less visible. Even so, sanitation is like HIV/AIDS in one crucial respect: its potential for sustained destruction. Without strong champions to raise awareness, mobilize resources and scale up the partnerships to make a difference, inadequate sanitation will remain one of the most powerful drivers of poverty, ill health and disadvantage—and among the greatest threats to the Millennium Development Goals project.

The biggest barrier in sanitation is the unwillingness of national and international political leaders to put excreta and its safe disposal on the international development agenda

